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SEQUENCE LISTING

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<110> Kohonen-Corish, Maija

<120> Methods of diagnosing colorectal cancer and reagents therefor

<130> RICE-029

<150> AU 2004900340

<151> 2004-01-23

<150> US 60/540,662

<151> 2004-01-29

<150> PCT/AU2005/000077

<151> 2005-01-24

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<170> PatentIn version 3.3

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Ile His Ile Asp Pro Leu Ser Tyr Asp Val Lys Pro Arg Gly Asp Ser

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Ile Arg His Gln Gln Ser Ala Glu Phe Val Asn Asp Leu Lys Arg Ala
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gaa gga cat gcc ata cga aat cca aat gct cag cag aca aaa gct gta Glu Gly His Ala Ile Arg Asn Pro Asn Ala Gln Gln Thr Lys Ala Val 560 565 570	2031
ctt gac tta gaa tca gaa aga aga tgg gtt ttg aca ggt act cca atc Leu Asp Leu Glu Ser Glu Arg Arg Trp Val Leu Thr Gly Thr Pro Ile 575 580 585	2079
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Arg Val Phe Leu Met Asp Pro Ala Trp Asn Pro Ala Ala Glu Asp Gln			
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tgc ttt gac aga tgc cat aga ctt ggt cag aag caa gaa gtt atc atc			3183
Cys Phe Asp Arg Cys His Arg Leu Gly Gln Lys Gln Glu Val Ile Ile			
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aca aaa ttc att gta aag gac tct gtt gaa gaa aat atg ctg aaa ata			3231
Thr Lys Phe Ile Val Lys Asp Ser Val Glu Glu Asn Met Leu Lys Ile			
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caa aac aaa aag aga gaa ctt gca gca gga gcc ttt gga act aaa aaa			3279
Gln Asn Lys Lys Arg Glu Leu Ala Ala Gly Ala Phe Gly Thr Lys Lys			
975	980	985	
cca aat gct gac gaa atg aaa caa gcc aaa att aat gaa atc aga aca			3327
Pro Asn Ala Asp Glu Met Lys Gln Ala Lys Ile Asn Glu Ile Arg Thr			
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Phe Phe Leu Arg Phe Glu Phe Gln Asp Val Ile Pro Pro Asp Asp Phe
35 40 45

Leu Thr Ser Asp Glu Glu Val Asp Ser Val Leu Phe Gly Ser Leu Arg
50 55 60

Gly His Val Val Gly Leu Arg Tyr Tyr Thr Gly Val Val Asn Asn Asn
15

65

70

75

80

Glu Met Val Ala Leu Gln Arg Asp Pro Asn Asn Pro Tyr Asp Lys Asn
85 90 95

Ala Ile Lys Val Asn Asn Val Asn Gly Asn Gln Val Gly His Leu Lys
100 105 110

Lys Glu Leu Ala Gly Ala Leu Ala Tyr Ile Met Asp Asn Lys Leu Ala
115 120 125

Gln Ile Glu Gly Val Val Pro Phe Gly Ala Asn Asn Ala Phe Thr Met
130 135 140

Pro Leu His Met Thr Phe Trp Gly Lys Glu Asn Arg Lys Ala Val
145 150 155 160

Ser Asp Gln Leu Lys Lys His Gly Phe Lys Leu Gly Pro Ala Pro Lys
165 170 175

Thr Leu Gly Phe Asn Leu Glu Ser Gly Trp Gly Ser Gly Arg Ala Gly
180 185 190

Pro Ser Tyr Ser Met Pro Val His Ala Ala Val Gln Met Thr Thr Glu
195 200 205

Gln Leu Lys Thr Glu Phe Asp Lys Leu Phe Glu Asp Leu Lys Glu Asp
210 215 220

Asp Lys Thr His Glu Met Glu Pro Ala Glu Ala Ile Glu Thr Pro Leu
225 230 235 240

Leu Pro His Gln Lys Gln Ala Leu Ala Trp Met Val Ser Arg Glu Asn
245 250 255

Ser Lys Glu Leu Pro Pro Phe Trp Glu Gln Arg Asn Asp Leu Tyr Tyr
260 265 270

Asn Thr Ile Thr Asn Phe Ser Glu Lys Asp Arg Pro Glu Asn Val His
275 280 285

Gly Gly Ile Leu Ala Asp Asp Met Gly Leu Gly Lys Thr Leu Thr Ala
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Ile Ala Val Ile Leu Thr Asn Phe His Asp Gly Arg Pro Leu Pro Ile
305 310 315 320

Glu Arg Val Lys Lys Asn Leu Leu Lys Lys Glu Tyr Asn Val Asn Asp
325 330 335

Gly Ser Met Lys Leu Gly Gly Asn Asn Thr Ser Glu Lys Ala Asp Gly
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Leu Ser Lys Asp Ala Ser Arg Cys Ser Glu Gln Pro Ser Ile Ser Asp
355 360 365

Ile Lys Glu Lys Ser Lys Phe Arg Met Ser Glu Leu Ser Ser Ser Arg
370 375 380

Pro Lys Arg Arg Lys Thr Ala Val Gln Tyr Ile Glu Ser Ser Asp Ser
385 390 395 400

Glu Glu Ile Glu Thr Ser Glu Leu Pro Gln Lys Met Lys Gly Lys Leu
405 410 415

Lys Asn Val Gln Ser Glu Thr Lys Gly Arg Ala Lys Ala Gly Ser Ser
420 425 430

Lys Val Ile Glu Asp Val Ala Phe Ala Cys Ala Leu Thr Ser Ser Val
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Pro Thr Thr Lys Lys Met Leu Lys Lys Gly Ala Cys Ala Val Glu
450 455 460

Gly Ser Lys Lys Thr Asp Val Glu Glu Arg Pro Arg Thr Thr Leu Ile
465 470 475 480

Ile Cys Pro Leu Ser Val Leu Ser Asn Trp Ile Asp Gln Phe Gly Gln
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His Ile Lys Ser Asp Val His Leu Asn Phe Tyr Val Tyr Tyr Gly Pro
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Asp Arg Ile Arg Glu Pro Ala Leu Leu Ser Lys Gln Asp Ile Val Leu
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Thr Thr Tyr Asn Ile Leu Thr His Asp Tyr Gly Thr Lys Gly Asp Ser
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545 550 555 560

Ala Ile Arg Asn Pro Asn Ala Gln Gln Thr Lys Ala Val Leu Asp Leu
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Glu Ser Glu Arg Arg Trp Val Leu Thr Gly Thr Pro Ile Gln Asn Ser
580 585 590

Leu Lys Asp Leu Trp Ser Leu Leu Ser Phe Leu Lys Leu Lys Pro Phe
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Ile Asp Arg Glu Trp Trp His Arg Thr Ile Gln Arg Pro Val Thr Met
610 615 620

Gly Asp Glu Gly Gly Leu Arg Arg Leu Gln Ser Leu Ile Lys Asn Ile
625 630 635 640

Thr Leu Arg Arg Thr Lys Thr Ser Lys Ile Lys Gly Lys Pro Val Leu
645 650 655

Glu Leu Pro Glu Arg Lys Val Phe Ile Gln His Ile Thr Leu Ser Asp
660 665 670

Glu Glu Arg Lys Ile Tyr Gln Ser Val Lys Asn Glu Gly Arg Ala Thr
675 680 685

Ile Gly Arg Tyr Phe Asn Glu Gly Thr Val Leu Ala His Tyr Ala Asp
690 695 700

Val Leu Gly Leu Leu Leu Arg Leu Arg Gln Ile Cys Cys His Thr Tyr
705 710 715 720

Leu Leu Thr Asn Ala Val Ser Ser Asn Gly Pro Ser Gly Asn Asp Thr
725 730 735

Pro Glu Glu Leu Arg Lys Lys Leu Ile Arg Lys Met Lys Leu Ile Leu
740 745 750

Ser Ser Gly Ser Asp Glu Glu Cys Ala Ile Cys Leu Asp Ser Leu Thr
755 760 765

Val Pro Val Ile Thr His Cys Ala His Val Phe Cys Lys Pro Cys Ile
770 775 780

Cys Gln Val Ile Gln Asn Glu Gln Pro His Ala Lys Cys Pro Leu Cys
785 790 795 800

Arg Asn Asp Ile His Glu Asp Asn Leu Leu Glu Cys Pro Pro Glu Glu
805 810 815

Leu Ala Arg Asp Ser Glu Lys Lys Ser Asp Met Glu Trp Thr Ser Ser
820 825 830

Ser Lys Ile Asn Ala Leu Met His Ala Leu Thr Asp Leu Arg Lys Lys
835 840 845

Asn Pro Asn Ile Lys Ser Leu Val Val Ser Gln Phe Thr Thr Phe Leu
850 855 860

Ser Leu Ile Glu Ile Pro Leu Lys Ala Ser Gly Phe Val Phe Thr Arg
865 870 875 880

Leu Asp Gly Ser Met Ala Gln Lys Lys Arg Val Glu Ser Ile Gln Cys
885 890 895

Phe Gln Asn Thr Glu Ala Gly Ser Pro Thr Ile Met Leu Leu Ser Leu
900 905 910

Arg Ala Gly Gly Val Gly Leu Asn Leu Ser Ala Ala Ser Arg Val Phe
915 920 925

Leu Met Asp Pro Ala Trp Asn Pro Ala Ala Glu Asp Gln Cys Phe Asp
930 935 940

Arg Cys His Arg Leu Gly Gln Lys Gln Glu Val Ile Ile Thr Lys Phe
945 950 955 960

Ile Val Lys Asp Ser Val Glu Glu Asn Met Leu Lys Ile Gln Asn Lys
965 970 975

Lys Arg Glu Leu Ala Ala Gly Ala Phe Gly Thr Lys Lys Pro Asn Ala
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35 40 45

Leu Gly Pro Ala Pro Lys Thr Leu Gly Phe Asn Leu Glu Ser Gly Trp
50 55 60

Gly Ser Gly Arg Ala Gly Pro Ser Tyr Ser Met Pro Val His Ala Ala
65 70 75 80

Val Gln Met Thr Thr Glu Gln Leu Lys Thr Glu Phe Asp Lys Leu Phe
85 90 95

Glu Asp Leu Lys Glu Asp Asp Lys Thr His Glu Met Glu Pro Ala Glu
100 105 110

Ala Ile Glu Thr Pro Leu Leu Pro His Gln Lys Gln Ala Leu Ala Trp
115 120 125

Met Val Ser Arg Glu Asn Ser Lys Glu Leu Pro Pro Phe Trp Glu Gln
130 135 140

Arg Asn Asp Leu Tyr Tyr Asn Thr Ile Thr Asn Phe Ser Glu Lys Asp
145 150 155 160

Arg Pro Glu Asn Val His Gly Gly Ile Leu Ala Asp Asp Met Gly Leu
165 170 175

Gly Lys Thr Leu Thr Ala Ile Ala Val Ile Leu Thr Asn Phe His Asp
180 185 190

Gly Arg Pro Leu Pro Ile Glu Arg Val Lys Lys Asn Leu Leu Lys Lys
195 200 205

Glu Tyr Asn Val Asn Asp Gly Ser Met Lys Leu Gly Gly Asn Asn Thr
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Ser Glu Lys Ala Asp Gly Leu Ser Lys Asp Ala Ser Arg Cys Ser Glu
225 230 235 240

Gln Pro Ser Ile Ser Asp Ile Lys Glu Lys Ser Lys Phe Arg Met Ser
245 250 255

Glu Leu Ser Ser Ser Arg Pro Lys Arg Arg Lys Thr Ala Val Gln Tyr
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Ile Glu Ser Ser Asp Ser Glu Glu Ile Glu Thr Ser Glu Leu Pro Gln
275 280 285

Lys Met Lys Gly Lys Leu Lys Asn Val Gln Ser Glu Thr Lys Gly Arg
290 295 300

Ala Lys Ala Gly Ser Ser Lys Val Ile Glu Asp Val Ala Phe Ala Cys
305 310 315 320

Ala Leu Thr Ser Ser Val Pro Thr Thr Lys Lys Lys Met Leu Lys Lys
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Gly Ala Cys Ala Val Glu Gly Ser Lys Lys Thr Asp Val Glu Glu Arg
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Pro Arg Thr Thr Leu Ile Ile Cys Pro Leu Ser Val Leu Ser Asn Trp
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Ile Asp Gln Phe Gly Gln His Ile Lys Ser Asp Val His Leu Asn Phe
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Tyr Val Tyr Tyr Gly Pro Asp Arg Ile Arg Glu Pro Ala Leu Leu Ser
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Lys Gln Asp Ile Val Leu Thr Thr Tyr Asn Ile Leu Thr His Asp Tyr
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Gly Thr Lys Gly Asp Ser Pro Leu His Ser Ile Arg Trp Leu Arg Val
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Ile Leu Asp Glu Gly His Ala Ile Arg Asn Pro Asn Ala Gln Gln Thr
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Lys Ala Val Leu Asp Leu Glu Ser Glu Arg Arg Trp Val Leu Thr Gly
450 455 460

Thr Pro Ile Gln Asn Ser Leu Lys Asp Leu Trp Ser Leu Leu Ser Phe
465 470 475 480

Leu Lys Leu Lys Pro Phe Ile Asp Arg Glu Trp Trp His Arg Thr Ile
485 490 495

Gln Arg Pro Val Thr Met Gly Asp Glu Gly Gly Leu Arg Arg Leu Gln
500 505 510

Ser Leu Ile Lys Asn Ile Thr Leu Arg Arg Thr Lys Thr Ser Lys Ile
515 520 525

Lys Gly Lys Pro Val Leu Glu Leu Pro Glu Arg Lys Val Phe Ile Gln
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His Ile Thr Leu Ser Asp Glu Glu Arg Lys Ile Tyr Gln Ser Val Lys
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Asn Glu Gly Arg Ala Thr Ile Gly Arg Tyr Phe Asn Glu Gly Thr Val
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Ile Cys Cys His Thr Tyr Leu Leu Thr Asn Ala Val Ser Ser Asn Gly
595 600 605

Pro Ser Gly Asn Asp Thr Pro Glu Glu Leu Arg Lys Lys Leu Ile Arg
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Lys Met Lys Leu Ile Leu Ser Ser Gly Ser Asp Glu Glu Cys Ala Ile
625 630 635 640

Cys Leu Asp Ser Leu Thr Val Pro Val Ile Thr His Cys Ala His Val
645 650 655

Phe Cys Lys Pro Cys Ile Cys Gln Val Ile Gln Asn Glu Gln Pro His
660 665 670

Ala Lys Cys Pro Leu Cys Arg Asn Asp Ile His Glu Asp Asn Leu Leu
675 680 685

Glu Cys Pro Pro Glu Glu Leu Ala Arg Asp Ser Glu Lys Lys Ser Asp
690 695 700

Met Glu Trp Thr Ser Ser Lys Ile Asn Ala Leu Met His Ala Leu
705 710 715 720

Thr Asp Leu Arg Lys Lys Asn Pro Asn Ile Lys Ser Leu Val Val Ser
22

725

730

735

Gln Phe Thr Thr Phe Leu Ser Leu Ile Glu Ile Pro Leu Lys Ala Ser
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Gly Phe Val Phe Thr Arg Leu Asp Gly Ser Met Ala Gln Lys Lys Arg
 755 760 765

Val Glu Ser Ile Gln Cys Phe Gln Asn Thr Glu Ala Gly Ser Pro Thr
 770 775 780

Ile Met Leu Leu Ser Leu Arg Ala Gly Gly Val Gly Leu Asn Leu Ser
 785 790 795 800

Ala Ala Ser Arg Val Phe Leu Met Asp Pro Ala Trp Asn Pro Ala Ala
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Glu Asp Gln Cys Phe Asp Arg Cys His Arg Leu Gly Gln Lys Gln Glu
 820 825 830

Val Ile Ile Thr Lys Phe Ile Val Lys Asp Ser Val Glu Glu Asn Met
 835 840 845

Leu Lys Ile Gln Asn Lys Lys Arg Glu Leu Ala Ala Gly Ala Phe Gly
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ctg gcc ttg gga atg gat gaa agg aag cag caa ctt tca aat ggg tct Leu Ala Leu Gly Met Asp Glu Arg Lys Gln Gln Leu Ser Asn Gly Ser 85	90	95	288
ctg ctg ata caa aac ata ctt cat tcc aga cac cac aag cca gat gag Leu Leu Ile Gln Asn Ile Leu His Ser Arg His His Lys Pro Asp Glu 100	105	110	336
gga ctt tac caa tgt gag gca tct tta gga gat tct ggc tca att att Gly Leu Tyr Gln Cys Glu Ala Ser Leu Gly Asp Ser Gly Ser Ile Ile 115	120	125	384
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tat ttt ctg caa aga cca tcc aat gta gta gcc att gaa gga aaa gat Tyr Phe Leu Gln Arg Pro Ser Asn Val Val Ala Ile Glu Gly Lys Asp 245	250	255	768
gct gtc ctg gaa tgt tgt gtt tct ggc tat cct cca cca agt ttt acc Ala Val Leu Glu Cys Cys Val Ser Gly Tyr Pro Pro Pro Ser Phe Thr 260	265	270	816

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agt gga atg tat acc tgt gtt gtc aca tat aaa aat gag aat att agt Ser Gly Met Tyr Thr Cys Val Val Thr Tyr Lys Asn Glu Asn Ile Ser 305 310 315 320	960
gcc tct gca gag ctc aca gtc ttg gtt ccg cca tgg ttt tta aat cat Ala Ser Ala Glu Leu Thr Val Leu Val Pro Pro Trp Phe Leu Asn His 325 330 335	1008
cct tcc aac ctg tat gcc tat gaa agc atg gat att gag ttt gaa tgt Pro Ser Asn Leu Tyr Ala Tyr Glu Ser Met Asp Ile Glu Phe Glu Cys 340 345 350	1056
aca gtc tct gga aag cct gtg ccc act gtg aat tgg atg aag aat gga Thr Val Ser Gly Lys Pro Val Pro Thr Val Asn Trp Met Lys Asn Gly 355 360 365	1104
gat gtg gtc att cct agt gat tat ttt cag ata gtg gga gga agc aac Asp Val Val Ile Pro Ser Asp Tyr Phe Gln Ile Val Gly Gly Ser Asn 370 375 380	1152
tta cgg ata ctt ggg gtg gtg aag tca gat gaa ggc ttt tat caa tgt Leu Arg Ile Leu Gly Val Val Lys Ser Asp Glu Gly Phe Tyr Gln Cys 385 390 395 400	1200
gtg gct gaa aat gag gct gga aat gcc cag acc agt gca cag ctc att Val Ala Glu Asn Glu Ala Gly Asn Ala Gln Thr Ser Ala Gln Leu Ile 405 410 415	1248
gtc cct aag cct gca atc cca agc tcc agt gtc ctc cct tcg gct ccc Val Pro Lys Pro Ala Ile Pro Ser Ser Val Leu Pro Ser Ala Pro 420 425 430	1296
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atg tac acc ttt cga gtt gtg gct tac aat gaa tgg gga ccg gga gag Met Tyr Thr Phe Arg Val Val Ala Tyr Asn Glu Trp Gly Pro Gly Glu 500 505 510	1536
agt tct caa ccc atc aag gtg gcc aca cag cct gag ttg caa gtt cca	1584

Ser Ser Gln Pro Ile Lys Val Ala Thr Gln Pro Glu Leu Gln Val Pro			
515	520	525	
ggg cca gta gaa aac ctg caa gct gta tct acc tca cct acc tca att			1632
Gly Pro Val Glu Asn Leu Gln Ala Val Ser Thr Ser Pro Thr Ser Ile			
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ctt att acc tgg gaa ccc cct gcc tat gca aac ggt cca gtc caa ggt			1680
Leu Ile Thr Trp Glu Pro Pro Ala Tyr Ala Asn Gly Pro Val Gln Gly			
545	550	555	560
tac aga ttg ttc tgc act gag gtg tcc aca gga aaa gaa cag aat ata			1728
Tyr Arg Leu Phe Cys Thr Glu Val Ser Thr Gly Lys Glu Gln Asn Ile			
565	570	575	
gag gtt gat gga cta tct tat aaa ctg gaa ggc ctg aaa aaa ttc acc			1776
Glu Val Asp Gly Leu Ser Tyr Lys Leu Glu Gly Leu Lys Lys Phe Thr			
580	585	590	
gaa tat agt ctt cga ttc tta gct tat aat cgc tat ggt ccg ggc gtc			1824
Glu Tyr Ser Leu Arg Phe Leu Ala Tyr Asn Arg Tyr Gly Pro Gly Val			
595	600	605	
tct act gat gat ata aca gtg gtt aca ctt tct gac gtg cca agt gcc			1872
Ser Thr Asp Asp Ile Thr Val Val Thr Leu Ser Asp Val Pro Ser Ala			
610	615	620	
ccg cct cag aac gtc tcc ctg gaa gtg gtc aat tca aga agt atc aaa			1920
Pro Pro Gln Asn Val Ser Leu Glu Val Val Asn Ser Arg Ser Ile Lys			
625	630	635	640
gtt agc tgg ctg cct cca tca gga aca caa aat gga ttt att acc			1968
Val Ser Trp Leu Pro Pro Ser Gly Thr Gln Asn Gly Phe Ile Thr			
645	650	655	
ggc tat aaa att cga cac aga aag acg acc cgc agg ggt gag atg gaa			2016
Gly Tyr Lys Ile Arg His Arg Lys Thr Thr Arg Arg Gly Glu Met Glu			
660	665	670	
aca ctg gag cca aac aac ctc tgg tac cta ttc aca gga ctg gag aaa			2064
Thr Leu Glu Pro Asn Asn Leu Trp Tyr Leu Phe Thr Gly Leu Glu Lys			
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gga agt cag tac agt ttc cag gtg tca gcc atg aca gtc aat ggt act			2112
Gly Ser Gln Tyr Ser Phe Gln Val Ser Ala Met Thr Val Asn Gly Thr			
690	695	700	
gga cca cct tcc aac tgg tat act gca gag act cca gag aat gat cta			2160
Gly Pro Pro Ser Asn Trp Tyr Thr Ala Glu Thr Pro Glu Asn Asp Leu			
705	710	715	720
gat gaa tct caa gtt cct gat caa cca agc tct ctt cat gtg agg ccc			2208
Asp Glu Ser Gln Val Pro Asp Gln Pro Ser Ser Leu His Val Arg Pro			
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cag act aac tgc atc atc atg agt tgg act cct ccc ttg aac cca aac			2256
Gln Thr Asn Cys Ile Ile Met Ser Trp Thr Pro Pro Leu Asn Pro Asn			
740	745	750	
atc gtg gtg cga ggt tat att atc ggt tat ggc gtt ggg agc cct tac			2304
Ile Val Val Arg Gly Tyr Ile Ile Gly Tyr Gly Val Gly Ser Pro Tyr			

755

760

765

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acc tct gct ccc aag gac ttt aca gtc att act agg gaa ggg aag cct Thr Ser Ala Pro Lys Asp Phe Thr Val Ile Thr Arg Glu Gly Lys Pro 945 950 955 960	2880
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att act gct tac atc tta ttt tat acc ttg gac aag aac atc cca att Ile Thr Ala Tyr Ile Leu Phe Tyr Thr Leu Asp Lys Asn Ile Pro Ile 980 985 990	2976
gat gac tgg att atg gaa aca atc agt ggt gat agg ctt act cat caa Asp Asp Trp Ile Met Glu Thr Ile Ser Gly Asp Arg Leu Thr His Gln 995 1000 1005	3024

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Ile Met Asp Leu Asn Leu Asp	Thr Met Tyr Tyr Phe	Arg Ile Gln	
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Ala Arg Asn Ser Lys Gly Val	Gly Pro Leu Ser Asp	Pro Ile Leu	
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ttc agg act ctg aaa gtg gaa	cac cct gac aaa atg	gct aat gac	3159
Phe Arg Thr Leu Lys Val Glu	His Pro Asp Lys Met	Ala Asn Asp	
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caa ggt cgt cat gga gat gga	ggt tat tgg cca gtt	gat act aat	3204
Gln Gly Arg His Gly Asp Gly	Gly Tyr Trp Pro Val	Asp Thr Asn	
1055	1060	1065	
ttg att gat aga agc acc cta	aat gag ccg cca att	gga caa atg	3249
Leu Ile Asp Arg Ser Thr Leu	Asn Glu Pro Pro Ile	Gly Gln Met	
1070	1075	1080	
cac ccc ccg cat ggc agt gtc	act cct cag aag aac	agc aac ctg	3294
His Pro Pro His Gly Ser Val	Thr Pro Gln Lys Asn	Ser Asn Leu	
1085	1090	1095	
ctt gtg atc att gtg gtc acc	gtt ggt gtc atc aca	gtg ctg gta	3339
Leu Val Ile Ile Val Val Thr	Val Gly Val Ile Thr	Val Leu Val	
1100	1105	1110	
gtg gtc atc gtg gct gtg att	tgc acc cga cgc tct	tca gcc cag	3384
Val Val Ile Val Ala Val Ile	Cys Thr Arg Arg Ser	Ser Ala Gln	
1115	1120	1125	
cag aga aag aaa cgg gcc acc	cac agt gct ggc aaa	agg aag ggc	3429
Gln Arg Lys Lys Arg Ala Thr	His Ser Ala Gly Lys	Arg Lys Gly	
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agc cag aag gac ctc cga ccc	cct gat ctt tgg atc	cat cat gaa	3474
Ser Gln Lys Asp Leu Arg Pro	Pro Asp Leu Trp Ile	His His Glu	
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gaa atg gag atg aaa aat att	gaa aag cca tct ggc	act gac cct	3519
Glu Met Glu Met Lys Asn Ile	Glu Lys Pro Ser Gly	Thr Asp Pro	
1160	1165	1170	
gca gga agg gac tct ccc atc	caa agt tgc caa gac	ctc aca cca	3564
Ala Gly Arg Asp Ser Pro Ile	Gln Ser Cys Gln Asp	Leu Thr Pro	
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gtc agc cac agc cag tca gaa	acc caa ctg gga agc	aaa agc acc	3609
Val Ser His Ser Gln Ser Glu	Thr Gln Leu Gly Ser	Lys Ser Thr	
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Ser His Ser Gly Gln Asp Thr	Glu Glu Ala Gly Ser	Ser Met Ser	
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Thr Leu Glu Arg Ser Leu Ala	Ala Arg Arg Ala Pro	Arg Ala Lys	
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Leu Met Ile Pro Met Asp Ala	Gln Ser Asn Asn Pro	Ala Val Val	
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agc gcc atc ccg gtg cca acg	cta gaa agt gcc cag	tac cca gga	3789
Ser Ala Ile Pro Val Pro Thr	Leu Glu Ser Ala Gln	Tyr Pro Gly	
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Ile Leu Pro Ser Pro Thr Cys	Gly Tyr Pro His Pro	Gln Phe Thr	
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Leu Arg Pro Val Pro Phe Pro	Thr Leu Ser Val Asp	Arg Gly Phe	
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Gly Ala Gly Arg Ser Gln Ser	Val Ser Glu Gly Pro	Thr Thr Gln	
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caa cca cct atg ctg ccc cca	tct cag cct gag cat	tct agc agc	3969
Gln Pro Pro Met Leu Pro Pro	Ser Gln Pro Glu His	Ser Ser Ser	
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gag gag gca cca agc aga acc	atc ccc aca gct tgt	gtt cga cca	4014
Glu Glu Ala Pro Ser Arg Thr	Ile Pro Thr Ala Cys	Val Arg Pro	
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act cac cca ctc cgc agc ttt	gct aat cct ttg cta	cct cca cca	4059
Thr His Pro Leu Arg Ser Phe	Ala Asn Pro Leu Leu	Pro Pro Pro	
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Met Ser Ala Ile Glu Pro Lys	Val Pro Tyr Thr Pro	Leu Leu Ser	
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cag cca ggg ccc act ctt cct	aag acc cat gtg aaa	aca gcc tcc	4149
Gln Pro Gly Pro Thr Leu Pro	Lys Thr His Val Lys	Thr Ala Ser	
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Leu Gly Leu Ala Gly Lys Ala	Arg Ser Pro Leu Leu	Pro Val Ser	
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Val Pro Thr Ala Pro Glu Val	Ser Glu Glu Ser His	Lys Pro Thr	
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Glu Asp Ser Ala Asn Val Tyr	Glu Gln Asp Asp Leu	Ser Glu Gln	
1415	1420	1425	
atg gca agt ttg gaa gga ctc	atg aag cag ctt aat	gcc atc aca	4329
Met Ala Ser Leu Glu Gly Leu	Met Lys Gln Leu Asn	Ala Ile Thr	
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Gly Ser Ala Phe			
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Gln	Ile	Lys	Ala	Phe	Thr	Ala	Leu	Arg	Phe	Leu	Ser	Glu	Pro	Ser	Asp
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Ala	Val	Thr	Met	Arg	Gly	Gly	Asn	Val	Leu	Leu	Asp	Cys	Ser	Ala	Glu
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Ser	Asp	Arg	Gly	Val	Pro	Val	Ile	Lys	Trp	Lys	Lys	Asp	Gly	Ile	His
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Leu	Leu	Ile	Gln	Asn	Ile	Leu	His	Ser	Arg	His	His	Lys	Pro	Asp	Glu
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Gly	Leu	Tyr	Gln	Cys	Glu	Ala	Ser	Leu	Gly	Asp	Ser	Gly	Ser	Ile	Ile
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Ser	Arg	Thr	Ala	Lys	Val	Ala	Val	Ala	Gly	Pro	Leu	Arg	Phe	Leu	Ser
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Gln	Thr	Glu	Ser	Val	Thr	Ala	Phe	Met	Gly	Asp	Thr	Val	Leu	Leu	Lys
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Cys	Glu	Val	Ile	Gly	Glu	Pro	Met	Pro	Thr	Ile	His	Trp	Gln	Lys	Asn
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Gln	Gln	Asp	Leu	Thr	Pro	Ile	Pro	Gly	Asp	Ser	Arg	Val	Val	Val	Leu
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Pro Ser Gly Ala Leu Gln Ile Ser Arg Leu Gln Pro Gly Asp Ile Gly
195 200 205

Ile Tyr Arg Cys Ser Ala Arg Asn Pro Ala Ser Ser Arg Thr Gly Asn
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Glu Ala Glu Val Arg Ile Leu Ser Asp Pro Gly Leu His Arg Gln Leu
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Tyr Phe Leu Gln Arg Pro Ser Asn Val Val Ala Ile Glu Gly Lys Asp
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Ala Val Leu Glu Cys Cys Val Ser Gly Tyr Pro Pro Pro Ser Phe Thr
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Trp Leu Arg Gly Glu Glu Val Ile Gln Leu Arg Ser Lys Lys Tyr Ser
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Ser Gly Met Tyr Thr Cys Val Val Thr Tyr Lys Asn Glu Asn Ile Ser
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Pro Ser Asn Leu Tyr Ala Tyr Glu Ser Met Asp Ile Glu Phe Glu Cys
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Arg Asp Val Val Pro Val Leu Val Ser Ser Arg Phe Val Arg Leu Ser
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Phe Phe Ser Arg Glu Gly Asp Asn Arg Glu Arg Ala Leu Asn Thr Thr
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Gln Pro Gly Ser Leu Gln Leu Thr Val Gly Asn Leu Lys Pro Glu Ala
485 490 495

Met Tyr Thr Phe Arg Val Val Ala Tyr Asn Glu Trp Gly Pro Gly Glu
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Ser Ser Gln Pro Ile Lys Val Ala Thr Gln Pro Glu Leu Gln Val Pro
515 520 525

Gly Pro Val Glu Asn Leu Gln Ala Val Ser Thr Ser Pro Thr Ser Ile
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Leu Ile Thr Trp Glu Pro Pro Ala Tyr Ala Asn Gly Pro Val Gln Gly
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Tyr Arg Leu Phe Cys Thr Glu Val Ser Thr Gly Lys Glu Gln Asn Ile
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Glu Val Asp Gly Leu Ser Tyr Lys Leu Glu Gly Leu Lys Lys Phe Thr
580 585 590

Glu Tyr Ser Leu Arg Phe Leu Ala Tyr Asn Arg Tyr Gly Pro Gly Val
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Ser Thr Asp Asp Ile Thr Val Val Thr Leu Ser Asp Val Pro Ser Ala
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Pro Pro Gln Asn Val Ser Leu Glu Val Val Asn Ser Arg Ser Ile Lys
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Val Ser Trp Leu Pro Pro Pro Ser Gly Thr Gln Asn Gly Phe Ile Thr
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Gly Tyr Lys Ile Arg His Arg Lys Thr Thr Arg Arg Gly Glu Met Glu
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Thr Leu Glu Pro Asn Asn Leu Trp Tyr Leu Phe Thr Gly Leu Glu Lys
675 680 685

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Gly Pro Pro Ser Asn Trp Tyr Thr Ala Glu Thr Pro Glu Asn Asp Leu
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Asp Glu Ser Gln Val Pro Asp Gln Pro Ser Ser Leu His Val Arg Pro
725 730 735

Gln Thr Asn Cys Ile Ile Met Ser Trp Thr Pro Pro Leu Asn Pro Asn
740 745 750

Ile Val Val Arg Gly Tyr Ile Ile Gly Tyr Gly Val Gly Ser Pro Tyr
755 760 765

Ala Glu Thr Val Arg Val Asp Ser Lys Gln Arg Tyr Tyr Ser Ile Glu
770 775 780

Arg Leu Glu Ser Ser His Tyr Val Ile Ser Leu Lys Ala Phe Asn
785 790 795 800

Asn Ala Gly Glu Gly Val Pro Leu Tyr Glu Ser Ala Thr Thr Arg Ser
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Val Ser His Ser Gln Ser Glu Thr Gln Leu Gly Ser Lys Ser Thr
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Gln Pro Gly Pro Thr Leu Pro Lys Thr His Val Lys Thr Ala Ser
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										Met	Ala	Ala	Ser	Tyr	
										1			5		
gat	cag	ttg	tta	aag	caa	gtt	gag	gca	ctg	aag	atg	gag	aac	tca	aat
Asp	Gln	Leu	Leu	Lys	Gln	Val	Glu	Ala	Leu	Lys	Met	Glu	Asn	Ser	Asn
															104
10															15
															20
ctt	cga	caa	gag	cta	gaa	gat	aat	tcc	aat	cat	ctt	aca	aaa	ctg	gaa
Leu	Arg	Gln	Glu	Leu	Glu	Asp	Asn	Ser	Asn	His	Leu	Thr	Lys	Leu	Glu
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25															30
															35
act	gag	gca	tct	aat	atg	aag	gaa	gta	ctt	aaa	caa	cta	caa	gga	agt
Thr	Glu	Ala	Ser	Asn	Met	Lys	Glu	Val	Leu	Lys	Gln	Leu	Gln	Gly	Ser
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															45
															50
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Ile	Glu	Asp	Glu	Ala	Met	Ala	Ser	Ser	Gly	Gln	Ile	Asp	Leu	Leu	Glu
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															60
															65
															70
cgt	ctt	aaa	gag	ctt	aac	tta	gat	agc	agt	aat	ttc	cct	gga	gta	aaa
Arg	Leu	Lys	Glu	Leu	Asn	Leu	Asp	Ser	Ser	Asn	Phe	Pro	Gly	Val	Lys
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															85

ctg	cgg	tca	aaa	atg	tcc	ctc	cgt	tct	tat	gga	agc	cgg	gaa	gga	tct	344
Leu	Arg	Ser	Lys	Met	Ser	Leu	Arg	Ser	Tyr	Gly	Ser	Arg	Glu	Gly	Ser	
90								95					100			
gta	tca	agc	cgt	tct	gga	gag	tgc	agt	cct	gtt	cct	atg	ggt	tca	ttt	392
Val	Ser	Ser	Arg	Ser	Gly	Glu	Cys	Ser	Pro	Val	Pro	Met	Gly	Ser	Phe	
105								110					115			
cca	aga	aga	ggg	ttt	gta	aat	gga	agc	aga	gaa	agt	act	gga	tat	tta	440
Pro	Arg	Arg	Gly	Phe	Val	Asn	Gly	Ser	Arg	Glu	Ser	Thr	Gly	Tyr	Leu	
120								125					130			
gaa	gaa	ctt	gag	aaa	gag	agg	tca	ttg	ctt	gct	gat	ctt	gac	aaa		488
Glu	Glu	Leu	Glu	Lys	Glu	Arg	Ser	Leu	Leu	Leu	Ala	Asp	Leu	Asp	Lys	
135								140					145			150
gaa	gaa	aag	gaa	aaa	gac	tgg	tat	tac	gct	caa	ctt	cag	aat	ctc	act	536
Glu	Glu	Lys	Glu	Lys	Asp	Trp	Tyr	Tyr	Ala	Gln	Leu	Gln	Asn	Leu	Thr	
155								160					165			
aaa	aga	ata	gat	agt	ctt	cct	tta	act	gaa	aat	ttt	tcc	tta	caa	aca	584
Lys	Arg	Ile	Asp	Ser	Leu	Pro	Leu	Thr	Glu	Asn	Phe	Ser	Leu	Gln	Thr	
170								175					180			
gat	atg	acc	aga	agg	caa	ttg	gaa	tat	gaa	gca	agg	caa	atc	aga	gtt	632
Asp	Met	Thr	Arg	Arg	Gln	Leu	Glu	Tyr	Glu	Ala	Arg	Gln	Ile	Arg	Val	
185								190					195			
gcg	atg	gaa	gaa	caa	cta	ggt	acc	tgc	cag	gat	atg	gaa	aaa	cga	gca	680
Ala	Met	Glu	Glu	Gln	Leu	Gly	Thr	Cys	Gln	Asp	Met	Glu	Lys	Arg	Ala	
200								205					210			
cag	cga	aga	ata	gcc	aga	att	cag	caa	atc	gaa	aag	gac	ata	ctt	cgt	728
Gln	Arg	Arg	Ile	Ala	Arg	Ile	Gln	Gln	Ile	Glu	Lys	Asp	Ile	Leu	Arg	
215								220					225			230
ata	cga	cag	ctt	tta	cag	tcc	caa	gca	aca	gaa	gca	gag	agg	tca	tct	776
Ile	Arg	Gln	Leu	Leu	Gln	Ser	Gln	Ala	Thr	Glu	Ala	Glu	Arg	Ser	Ser	
235								240					245			
cag	aac	aag	cat	gaa	acc	ggc	tca	cat	gat	gct	gag	cgg	cag	aat	gaa	824
Gln	Asn	Lys	His	Glu	Thr	Gly	Ser	His	Asp	Ala	Glu	Arg	Gln	Asn	Glu	
250								255					260			
ggt	caa	gga	gtg	gga	gaa	atc	aac	atg	gca	act	tct	ggt	aat	ggt	cag	872
Gly	Gln	Gly	Val	Gly	Glu	Ile	Asn	Met	Ala	Thr	Ser	Gly	Asn	Gly	Gln	
265								270					275			
ggt	tca	act	aca	cga	atg	gac	cat	gaa	aca	gcc	agt	gtt	ttg	agt	tct	920
Gly	Ser	Thr	Thr	Arg	Met	Asp	His	Glu	Thr	Ala	Ser	Val	Leu	Ser	Ser	
280								285					290			
agt	agc	aca	cac	tct	gca	cct	cga	agg	ctg	aca	agt	cat	ctg	gga	acc	968
Ser	Ser	Thr	His	Ser	Ala	Pro	Arg	Arg	Leu	Thr	Ser	His	Leu	Gly	Thr	
295								300					305			310
aag	gtg	gaa	atg	gtg	tat	tca	ttg	tca	atg	ctt	ggt	act	cat	gat		1016
Lys	Val	Glu	Met	Val	Tyr	Ser	Leu	Leu	Ser	Met	Leu	Gly	Thr	His	Asp	
315								320					325			
aag	gat	gat	atg	tcg	cga	act	ttg	cta	gct	atg	tct	agt	tcc	caa	gac	1064

Lys Asp Asp Met Ser Arg Thr Leu Leu Ala Met Ser Ser Ser Gln Asp			
330	335	340	
agc tgt ata tcc atg cga cag tct gga tgt ctt cct ctc ctc atc cag			1112
Ser Cys Ile Ser Met Arg Gln Ser Gly Cys Leu Pro Leu Leu Ile Gln			
345	350	355	
ctt tta cat ggc aat gac aaa gac tct gta ttg ttg gga aat tcc cg			1160
Leu Leu His Gly Asn Asp Lys Asp Ser Val Leu Leu Gly Asn Ser Arg			
360	365	370	
ggc agt aaa gag gct cg gcc agg gcc agt gca gca ctc cac aac atc			1208
Gly Ser Lys Glu Ala Arg Ala Arg Ala Ser Ala Ala Leu His Asn Ile			
375	380	385	390
att cac tca cag cct gat gac aag aga ggc agg cgt gaa atc cga gtc			1256
Ile His Ser Gln Pro Asp Asp Lys Arg Gly Arg Arg Glu Ile Arg Val			
395	400	405	
ctt cat ctt ttg gaa cag ata cgc gct tac tgt gaa acc tgt tgg gag			1304
Leu His Leu Glu Gln Ile Arg Ala Tyr Cys Glu Thr Cys Trp Glu			
410	415	420	
tgg cag gaa gct cat gaa cca ggc atg gac cag gac aaa aat cca atg			1352
Trp Gln Glu Ala His Glu Pro Gly Met Asp Gln Asp Lys Asn Pro Met			
425	430	435	
cca gct cct gtt gaa cat cag atc tgt cct gct gtg tgt gtt cta atg			1400
Pro Ala Pro Val Glu His Gln Ile Cys Pro Ala Val Cys Val Leu Met			
440	445	450	
aaa ctt tca ttt gat gaa gag cat aga cat gca atg aat gaa cta ggg			1448
Lys Leu Ser Phe Asp Glu Glu His Arg His Ala Met Asn Glu Leu Gly			
455	460	465	470
gga cta cag gcc att gca gaa tta ttg caa gtg gac tgt gaa atg tac			1496
Gly Leu Gln Ala Ile Ala Glu Leu Leu Gln Val Asp Cys Glu Met Tyr			
475	480	485	
ggg ctt act aat gac cac tac agt att aca cta aga cga tat gct gga			1544
Gly Leu Thr Asn Asp His Tyr Ser Ile Thr Leu Arg Arg Tyr Ala Gly			
490	495	500	
atg gct ttg aca aac ttg act ttt gga gat gta gcc aac aag gct acg			1592
Met Ala Leu Thr Asn Leu Thr Phe Gly Asp Val Ala Asn Lys Ala Thr			
505	510	515	
cta tgc tct atg aaa ggc tgc atg aga gca ctt gtg gcc caa cta aaa			1640
Leu Cys Ser Met Lys Gly Cys Met Arg Ala Leu Val Ala Gln Leu Lys			
520	525	530	
tct gaa agt gaa gac tta cag cag gtt att gca agt gtt ttg agg aat			1688
Ser Glu Ser Glu Asp Leu Gln Gln Val Ile Ala Ser Val Leu Arg Asn			
535	540	545	550
ttg tct tgg cga gca gat gta aat agt aaa aag acg ttg cga gaa gtt			1736
Leu Ser Trp Arg Ala Asp Val Asn Ser Lys Lys Thr Leu Arg Glu Val			
555	560	565	
gga agt gtg aaa gca ttg atg gaa tgt gct tta gaa gtt aaa aag gaa			1784
Gly Ser Val Lys Ala Leu Met Glu Cys Ala Leu Glu Val Lys Lys Glu			

570	575	580	
tca acc ctc aaa agc gta ttg agt gcc tta tgg aat ttg tca gca cat Ser Thr Leu Lys Ser Val Leu Ser Ala Leu Trp Asn Leu Ser Ala His 585	590	595	1832
tgc act gag aat aaa gct gat ata tgt gct gta gat ggt gca ctt gca Cys Thr Glu Asn Lys Ala Asp Ile Cys Ala Val Asp Gly Ala Leu Ala 600	605	610	1880
ttt ttg gtt ggc act ctt act tac cgg agc cag aca aac act tta gcc Phe Leu Val Gly Thr Leu Thr Tyr Arg Ser Gln Thr Asn Thr Leu Ala 615	620	625	1928
att att gaa agt gga ggt ggg ata tta cgg aat gtg tcc agc ttg ata Ile Ile Glu Ser Gly Gly Ile Leu Arg Asn Val Ser Ser Leu Ile 635	640	645	1976
gct aca aat gag gac cac agg caa atc cta aga gag aac aac tgt cta Ala Thr Asn Glu Asp His Arg Gln Ile Leu Arg Glu Asn Asn Cys Leu 650	655	660	2024
caa act tta tta caa cac tta aaa tct cat agt ttg aca ata gtc agt Gln Thr Leu Leu Gln His Leu Lys Ser His Ser Leu Thr Ile Val Ser 665	670	675	2072
aat gca tgt gga act ttg tgg aat ctc tca gca aga aat cct aaa gac Asn Ala Cys Gly Thr Leu Trp Asn Leu Ser Ala Arg Asn Pro Lys Asp 680	685	690	2120
cag gaa gca tta tgg gac atg ggg gca gtt agc atg ctc aag aac ctc Gln Glu Ala Leu Trp Asp Met Gly Ala Val Ser Met Leu Lys Asn Leu 695	700	705	2168
att cat tca aag cac aaa atg att gct atg gga agt gct gca gct tta Ile His Ser Lys His Lys Met Ile Ala Met Gly Ser Ala Ala Ala Leu 715	720	725	2216
agg aat ctc atg gca aat agg cct gcg aag tac aag gat gcc aat att Arg Asn Leu Met Ala Asn Arg Pro Ala Lys Tyr Lys Asp Ala Asn Ile 730	735	740	2264
atg tct cct ggc tca agc ttg cca tct ctt cat gtt agg aaa caa aaa Met Ser Pro Gly Ser Ser Leu Pro Ser Leu His Val Arg Lys Gln Lys 745	750	755	2312
gcc cta gaa gca gaa tta gat gct cag cac tta tca gaa act ttt gac Ala Leu Glu Ala Glu Leu Asp Ala Gln His Leu Ser Glu Thr Phe Asp 760	765	770	2360
aat ata gac aat tta agt ccc aag gca tct cat cgt agt aag cag aga Asn Ile Asp Asn Leu Ser Pro Lys Ala Ser His Arg Ser Lys Gln Arg 775	780	785	2408
cac aag caa agt ctc tat ggt gat tat gtt ttt gac acc aat cga cat His Lys Gln Ser Leu Tyr Gly Asp Tyr Val Phe Asp Thr Asn Arg His 795	800	805	2456
gat gat aat agg tca gac aat ttt aat act ggc aac atg act gtc ctt Asp Asp Asn Arg Ser Asp Asn Phe Asn Thr Gly Asn Met Thr Val Leu 810	815	820	2504

tca cca tat ttg aat act aca gtg tta ccc agc tcc tct tca tca aga Ser Pro Tyr Leu Asn Thr Thr Val Leu Pro Ser Ser Ser Ser Arg 825	830	835	2552	
gga agc tta gat agt tct cgt tct gaa aaa gat aga agt ttg gag aga Gly Ser Leu Asp Ser Ser Arg Ser Glu Lys Asp Arg Ser Leu Glu Arg 840	845	850	2600	
gaa cgc gga att ggt cta ggc aac tac cat cca gca aca gaa aat cca Glu Arg Gly Ile Gly Leu Gly Asn Tyr His Pro Ala Thr Glu Asn Pro 855	860	865	870	2648
gga act tct tca aag cga ggt ttg cag atc tcc acc act gca gcc cag Gly Thr Ser Ser Lys Arg Gly Leu Gln Ile Ser Thr Thr Ala Ala Gln 875	880	885	2696	
att gcc aaa gtc atg gaa gaa gtg tca gcc att cat acc tct cag gaa Ile Ala Lys Val Met Glu Glu Val Ser Ala Ile His Thr Ser Gln Glu 890	895	900	2744	
gac aga agt tct ggg tct acc act gaa tta cat tgt gtg aca gat gag Asp Arg Ser Ser Gly Ser Thr Thr Glu Leu His Cys Val Thr Asp Glu 905	910	915	2792	
aga aat gca ctt aga aga agc tct gct gcc cat aca cat tca aac act Arg Asn Ala Leu Arg Arg Ser Ser Ala Ala His Thr His Ser Asn Thr 920	925	930	2840	
tac aat ttc act aag tcg gaa aat tca aat agg aca tgt tct atg cct Tyr Asn Phe Thr Lys Ser Glu Asn Ser Asn Arg Thr Cys Ser Met Pro 935	940	945	950	2888
tat gcc aaa tta gaa tac aag aga tct tca aat gat agt tta aat agt Tyr Ala Lys Leu Glu Tyr Lys Arg Ser Ser Asn Asp Ser Leu Asn Ser 955	960	965	2936	
gtc agt agt agt gat ggt tat ggt aaa aga ggt caa atg aaa ccc tcg Val Ser Ser Ser Asp Gly Tyr Gly Lys Arg Gly Gln Met Lys Pro Ser 970	975	980	2984	
att gaa tcc tat tct gaa gat gat gaa agt aag ttt tgc agt tat ggt Ile Glu Ser Tyr Ser Glu Asp Asp Glu Ser Lys Phe Cys Ser Tyr Gly 985	990	995	3032	
caa tac cca gcc gac cta gcc cat aaa ata cat agt gca aat cat Gln Tyr Pro Ala Asp Leu Ala His Lys Ile His Ser Ala Asn His 1000	1005	1010	3077	
atg gat gat aat gat gga gaa cta gat aca cca ata aat tat agt Met Asp Asp Asn Asp Gly Glu Leu Asp Thr Pro Ile Asn Tyr Ser 1015	1020	1025	3122	
cct aaa tat tca gat gag cag ttg aac tct gga agg caa agt cct Leu Lys Tyr Ser Asp Glu Gln Leu Asn Ser Gly Arg Gln Ser Pro 1030	1035	1040	3167	
tca cag aat gaa aga tgg gca aga ccc aaa cac ata ata gaa gat Ser Gln Asn Glu Arg Trp Ala Arg Pro Lys His Ile Ile Glu Asp 1045	1050	1055	3212	

gaa ata aaa caa agt gag caa aga caa tca agg aat caa agt aca	3257
Glu Ile Lys Gln Ser Glu Gln Arg Gln Ser Arg Asn Gln Ser Thr	
1060 1065 1070	
act tat cct gtt tat act gag agc act gat gat aaa cac ctc aag	3302
Thr Tyr Pro Val Tyr Thr Glu Ser Thr Asp Asp Lys His Leu Lys	
1075 1080 1085	
tcc caa cca cat ttt gga cag cag gaa tgt gtt tct cca tac agg	3347
Phe Gln Pro His Phe Gly Gln Gln Glu Cys Val Ser Pro Tyr Arg	
1090 1095 1100	
tca cgg gga gcc aat ggt tca gaa aca aat cga gtg ggt tct aat	3392
Ser Arg Gly Ala Asn Gly Ser Glu Thr Asn Arg Val Gly Ser Asn	
1105 1110 1115	
cat gga att aat caa aat gta agc cag tct ttg tgt caa gaa gat	3437
His Gly Ile Asn Gln Asn Val Ser Gln Ser Leu Cys Gln Glu Asp	
1120 1125 1130	
gac tat gaa gat gat aag cct acc aat tat agt gaa cgt tac tct	3482
Asp Tyr Glu Asp Asp Lys Pro Thr Asn Tyr Ser Glu Arg Tyr Ser	
1135 1140 1145	
gaa gaa gaa cag cat gaa gaa gaa gag aga cca aca aat tat agc	3527
Glu Glu Glu Gln His Glu Glu Glu Glu Arg Pro Thr Asn Tyr Ser	
1150 1155 1160	
ata aaa tat aat gaa gag aaa cgt cat gtg gat cag cct att gat	3572
Ile Lys Tyr Asn Glu Glu Lys Arg His Val Asp Gln Pro Ile Asp	
1165 1170 1175	
tat agt tta aaa tat gcc aca gat att cct tca tca cag aaa cag	3617
Tyr Ser Leu Lys Tyr Ala Thr Asp Ile Pro Ser Ser Gln Lys Gln	
1180 1185 1190	
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Ser Phe Ser Phe Ser Lys Ser Ser Ser Gly Gln Ser Ser Lys Thr	
1195 1200 1205	
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Glu His Met Ser Ser Ser Ser Glu Asn Thr Ser Thr Pro Ser Ser	
1210 1215 1220	
aat gcc aag agg cag aat cag ctc cat cca agt tct gca cag agt	3752
Asn Ala Lys Arg Gln Asn Gln Leu His Pro Ser Ser Ala Gln Ser	
1225 1230 1235	
aga agt ggt cag cct caa aag gct gcc act tgc aaa gtt tct tct	3797
Arg Ser Gly Gln Pro Gln Lys Ala Ala Thr Cys Lys Val Ser Ser	
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att aac caa gaa aca ata cag act tat tgt gta gaa gat act cca	3842
Ile Asn Gln Glu Thr Ile Gln Thr Tyr Cys Val Glu Asp Thr Pro	
1255 1260 1265	
ata tgt ttt tca aga tgt agt tca tta tca tct ttg tca tca gct	3887
Ile Cys Phe Ser Arg Cys Ser Ser Leu Ser Ser Leu Ser Ser Ala	
1270 1275 1280	
gaa gat gaa ata gga tgt aat cag acg aca cag gaa gca gat tct	3932

Glu	Asp	Glu	Ile	Gly	Cys	Asn	Gln	Thr	Thr	Gln	Glu	Ala	Asp	Ser	
1285						1290					1295				
															3977
gct	aat	acc	ctg	caa	ata	gca	gaa	ata	aaa	gaa	aag	att	gga	act	
Ala	Asn	Thr	Leu	Gln	Ile	Ala	Glu	Ile	Lys	Glu	Lys	Ile	Gly	Thr	
1300						1305					1310				
															4022
agg	tca	gct	gaa	gat	cct	gtg	agc	gaa	gtt	cca	gca	gtg	tca	cag	
Arg	Ser	Ala	Glu	Asp	Pro	Val	Ser	Glu	Val	Pro	Ala	Val	Ser	Gln	
1315						1320					1325				
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cac	cct	aga	acc	aaa	tcc	agc	aga	ctg	cag	ggt	tct	agt	tta	tct	
His	Pro	Arg	Thr	Lys	Ser	Ser	Arg	Leu	Gln	Gly	Ser	Ser	Leu	Ser	
1330						1335					1340				
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tca	gaa	tca	gcc	agg	cac	aaa	gct	gtt	gaa	ttt	tct	tca	gga	gcg	
Ser	Glu	Ser	Ala	Arg	His	Lys	Ala	Val	Glu	Phe	Ser	Ser	Gly	Ala	
1345						1350					1355				
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aaa	tct	ccc	tcc	aaa	agt	ggg	gct	cag	aca	ccc	aaa	agt	cca	cct	
Lys	Ser	Pro	Ser	Lys	Ser	Gly	Ala	Gln	Thr	Pro	Lys	Ser	Pro	Pro	
1360						1365					1370				
															4202
gaa	cac	tat	gtt	cag	gag	acc	cca	ctc	atg	ttt	agc	aga	tgt	act	
Glu	His	Tyr	Val	Gln	Glu	Thr	Pro	Leu	Met	Phe	Ser	Arg	Cys	Thr	
1375						1380					1385				
															4247
tct	gtc	agt	tca	ctt	gat	agt	ttt	gag	agt	cgt	tcg	att	gcc	agc	
Ser	Val	Ser	Ser	Leu	Asp	Ser	Phe	Glu	Ser	Arg	Ser	Ile	Ala	Ser	
1390						1395					1400				
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tcc	gtt	cag	agt	gaa	cca	tgc	agt	gga	atg	gta	agt	ggc	att	ata	
Ser	Val	Gln	Ser	Glu	Pro	Cys	Ser	Gly	Met	Val	Ser	Gly	Ile	Ile	
1405						1410					1415				
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agc	ccc	agt	gat	ctt	cca	gat	agc	cct	gga	caa	acc	atg	cca	cca	
Ser	Pro	Ser	Asp	Leu	Pro	Asp	Ser	Pro	Gly	Gln	Thr	Met	Pro	Pro	
1420						1425					1430				
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agc	aga	agt	aaa	aca	cct	cca	cca	cct	cct	caa	aca	gct	caa	acc	
Ser	Arg	Ser	Lys	Thr	Pro	Pro	Pro	Pro	Pro	Gln	Thr	Ala	Gln	Thr	
1435						1440					1445				
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aag	cga	gaa	gta	cct	aaa	aat	aaa	gca	cct	act	gct	gaa	aag	aga	
Lys	Arg	Glu	Val	Pro	Lys	Asn	Lys	Ala	Pro	Thr	Ala	Glu	Lys	Arg	
1450						1455					1460				
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gag	agt	gga	cct	aag	caa	gct	gca	gta	aat	gct	gca	gtt	cag	agg	
Glu	Ser	Gly	Pro	Lys	Gln	Ala	Ala	Val	Asn	Ala	Ala	Val	Gln	Arg	
1465						1470					1475				
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gtc	cag	gtt	ctt	cca	gat	gct	gat	act	tta	tta	cat	ttt	gcc	acg	
Val	Gln	Val	Leu	Pro	Asp	Ala	Asp	Thr	Leu	Leu	His	Phe	Ala	Thr	
1480						1485					1490				
															4562
gaa	agt	act	cca	gat	gga	ttt	tct	tgt	tca	tcc	agc	ctg	agt	gct	
Glu	Ser	Thr	Pro	Asp	Gly	Phe	Ser	Cys	Ser	Ser	Ser	Leu	Ser	Ala	
1495						1500					1505				
															4607
ctg	agc	ctc	gat	gag	cca	ttt	ata	cag	aaa	gat	gtg	gaa	tta	aga	
Leu	Ser	Leu	Asp	Glu	Pro	Phe	Ile	Gln	Lys	Asp	Val	Glu	Leu	Arg	

1510	1515	1520	
ata atg cct cca gtt cag gaa Ile Met Pro Pro Val Gln Glu 1525	aat gac aat ggg aat gaa aca gaa Asn Asp Asn Gly Asn Glu Thr Glu 1530	1535	4652
tca gag cag cct aaa gaa tca Ser Glu Gln Pro Lys Glu Ser 1540	aat gaa aac caa gag aaa gag gca Asn Glu Asn Gln Glu Lys Glu Ala 1545	1550	4697
gaa aaa act att gat tct gaa Glu Lys Thr Ile Asp Ser Glu 1555	aag gac cta tta gat gat tca gat Lys Asp Leu Leu Asp Asp Ser Asp 1560	1565	4742
gat gat gat att gaa ata cta Asp Asp Asp Ile Glu Ile Leu 1570	gaa gaa tgt att att tct gcc atg Glu Glu Cys Ile Ile Ser Ala Met 1575	1580	4787
cca aca aag tca tca cgt aaa Pro Thr Lys Ser Ser Arg Lys 1585	gca aaa aag cca gcc cag act gct Ala Lys Lys Pro Ala Gln Thr Ala 1590	1595	4832
tca aaa tta cct cca cct gtg Ser Lys Leu Pro Pro Val 1600	gca agg aaa cca agt cag ctg cct Ala Arg Lys Pro Ser Gln Leu Pro 1605	1610	4877
gtg tac aaa ctt cta cca tca Val Tyr Lys Leu Leu Pro Ser 1615	caa aac agg ttg caa ccc caa aag Gln Asn Arg Leu Gln Pro Gln Lys 1620	1625	4922
cat gtt agt ttt aca ccg ggg His Val Ser Phe Thr Pro Gly 1630	gat gat atg cca cggt gtg tat tgt Asp Asp Met Pro Arg Val Tyr Cys 1635	1640	4967
gtt gaa ggg aca cct ata aac Val Glu Gly Thr Pro Ile Asn 1645	ttt tcc aca gct aca tct cta agt Phe Ser Thr Ala Thr Ser Leu Ser 1650	1655	5012
gat cta aca atc gaa tcc cct Asp Leu Thr Ile Glu Ser Pro 1660	cca aat gag tta gct gct gga gaa Pro Asn Glu Leu Ala Ala Gly Glu 1665	1670	5057
gga gtt aga gga gga gca cag Gly Val Arg Gly Gly Ala Gln 1675	tca ggt gaa ttt gaa aaa cga gat Ser Gly Glu Phe Glu Lys Arg Asp 1680	1685	5102
acc att cct aca gaa ggc aga Thr Ile Pro Thr Glu Gly Arg 1690	agt aca gat gag gct caa gga gga Ser Thr Asp Glu Ala Gln Gly Gly 1695	1700	5147
aaa acc tca tct gta acc ata Lys Thr Ser Ser Val Thr Ile 1705	cct gaa ttg gat gac aat aaa gca Pro Glu Leu Asp Asp Asn Lys Ala 1710	1715	5192
gag gaa ggt gat att ctt gca Glu Glu Gly Asp Ile Leu Ala 1720	gaa tgc att aat tct gct atg ccc Glu Cys Ile Asn Ser Ala Met Pro 1725	1730	5237
aaa ggg aaa agt cac aag cct Lys Gly Lys Ser His Lys Pro 1735	ttc cgt gtg aaa aag ata atg gac Phe Arg Val Lys Lys Ile Met Asp 1740	1745	5282

cag gtc cag caa gca tct gcg tcg tct tct gca ccc aac aaa aat		5327
Gln Val Gln Gln Ala Ser Ala Ser Ser Ser Ala Pro Asn Lys Asn		
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Gln Leu Asp Gly Lys Lys Lys Pro Thr Ser Pro Val Lys Pro		
1765 1770 1775		
ata cca caa aat act gaa tat agg aca cgt gta aga aaa aat gca		5417
Ile Pro Gln Asn Thr Glu Tyr Arg Thr Arg Val Arg Lys Asn Ala		
1780 1785 1790		
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Asp Ser Lys Asn Asn Leu Asn Ala Glu Arg Val Phe Ser Asp Asn		
1795 1800 1805		
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Lys Asp Ser Lys Lys Gln Asn Leu Lys Asn Asn Ser Lys Asp Phe		
1810 1815 1820		
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Asn Asp Lys Leu Pro Asn Asn Glu Asp Arg Val Arg Gly Ser Phe		
1825 1830 1835		
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Ala Phe Asp Ser Pro His His Tyr Thr Pro Ile Glu Gly Thr Pro		
1840 1845 1850		
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Tyr Cys Phe Ser Arg Asn Asp Ser Leu Ser Ser Leu Asp Phe Asp		
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Asp Asp Asp Val Asp Leu Ser Arg Glu Lys Ala Glu Leu Arg Lys		
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Ala Lys Glu Asn Lys Glu Ser Glu Ala Lys Val Thr Ser His Thr		
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Glu Leu Thr Ser Asn Gln Gln Ser Ala Asn Lys Thr Gln Ala Ile		
1900 1905 1910		
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Ala Lys Gln Pro Ile Asn Arg Gly Gln Pro Lys Pro Ile Leu Gln		
1915 1920 1925		
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Lys Gln Ser Thr Phe Pro Gln Ser Ser Lys Asp Ile Pro Asp Arg		
1930 1935 1940		
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Gly Ala Ala Thr Asp Glu Lys Leu Gln Asn Phe Ala Ile Glu Asn		
1945 1950 1955		
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Thr Pro Val Cys Phe Ser His Asn Ser Ser Leu Ser Ser Leu Ser		
1960 1965 1970		

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Asp Ile	Asp Gln Glu Asn Asn	Asn Lys Glu Asn Glu	Pro Ile Lys	
1975	1980	1985		
 gag act	gag ccc cct gac tca	cag gga gaa cca agt	aaa cct caa	6047
Glu Thr	Glu Pro Pro Asp Ser	Gln Gly Glu Pro Ser	Lys Pro Gln	
1990	1995	2000		
 gca tca	ggc tat gct cct aaa	tca ttt cat gtt gaa	gat acc cca	6092
Ala Ser	Gly Tyr Ala Pro Lys	Ser Phe His Val Glu	Asp Thr Pro	
2005	2010	2015		
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Val Cys	Phe Ser Arg Asn Ser	Ser Leu Ser Ser Leu	Ser Ile Asp	
2020	2025	2030		
 tct gaa	gat gac ctg ttg cag	gaa tgt ata agc tcc	gca atg cca	6182
Ser Glu	Asp Asp Leu Leu Gln	Glu Cys Ile Ser Ser	Ala Met Pro	
2035	2040	2045		
 aaa aag	aaa aag cct tca aga	ctc aag ggt gat aat	gaa aaa cat	6227
Lys Lys	Lys Lys Pro Ser Arg	Leu Lys Gly Asp Asn	Glu Lys His	
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 agt ccc	aga aat atg ggt ggc	ata tta ggt gaa gat	ctg aca ctt	6272
Ser Pro	Arg Asn Met Gly Gly	Ile Leu Gly Glu Asp	Leu Thr Leu	
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 gat ttg	aaa gat ata cag aga	cca gat tca gaa cat	ggt cta tcc	6317
Asp Leu	Lys Asp Ile Gln Arg	Pro Asp Ser Glu His	Gly Leu Ser	
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 cct gat	tca gaa aat ttt gat	tgg aaa gct att cag	gaa ggt gca	6362
Pro Asp	Ser Glu Asn Phe Asp	Trp Lys Ala Ile Gln	Glu Gly Ala	
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Asn Ser	Ile Val Ser Ser Leu	His Gln Ala Ala Ala	Ala Ala Cys	
2110	2115	2120		
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Leu Ser	Arg Gln Ala Ser Ser	Asp Ser Asp Ser Ile	Leu Ser Leu	
2125	2130	2135		
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Lys Ser	Gly Ile Ser Leu Gly	Ser Pro Phe His Leu	Thr Pro Asp	
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 caa gaa	gaa aaa ccc ttt aca	agt aat aaa ggc cca	cga att cta	6542
Gln Glu	Glu Lys Pro Phe Thr	Ser Asn Lys Gly Pro	Arg Ile Leu	
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Lys Pro	Gly Glu Lys Ser Thr	Leu Glu Thr Lys Lys	Ile Glu Ser	
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Glu Ser	Lys Gly Ile Lys Gly	Gly Lys Lys Val Tyr	Lys Ser Leu	
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Lys	Gln	Pro	Leu	Gln	Ala	Asn	Met	Pro	Ser	Ile	Ser	Arg	Gly	Arg		
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Ser	Pro	Val	Ser	Lys	Lys	Gly	Pro	Pro	Leu	Lys	Thr	Pro	Ala	Ser		
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Lys	Ser	Pro	Ser	Glu	Gly	Gln	Thr	Ala	Thr	Thr	Ser	Pro	Arg	Gly		
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Ala	Lys	Pro	Ser	Val	Lys	Ser	Glu	Leu	Ser	Pro	Val	Ala	Arg	Gln		
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Gln Ile Asp Leu Leu Glu Arg Leu Lys Glu Leu Asn Leu Asp Ser Ser
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Asn Phe Pro Gly Val Lys Leu Arg Ser Lys Met Ser Leu Arg Ser Tyr
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Val Pro Met Gly Ser Phe Pro Arg Arg Gly Phe Val Asn Gly Ser Arg
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Leu Ser Glu Thr Phe Asp Asn Ile Asp Asn Leu Ser Pro Lys Ala Ser
770 775 780

His Arg Ser Lys Gln Arg His Lys Gln Ser Leu Tyr Gly Asp Tyr Val
785 790 795 800

Phe Asp Thr Asn Arg His Asp Asp Asn Arg Ser Asp Asn Phe Asn Thr
805 810 815

Gly Asn Met Thr Val Leu Ser Pro Tyr Leu Asn Thr Thr Val Leu Pro
820 825 830

Ser Ser Ser Ser Arg Gly Ser Leu Asp Ser Ser Arg Ser Glu Lys
835 840 845

Asp Arg Ser Leu Glu Arg Glu Arg Gly Ile Gly Leu Gly Asn Tyr His
850 855 860

Pro Ala Thr Glu Asn Pro Gly Thr Ser Ser Lys Arg Gly Leu Gln Ile
865 870 875 880

Ser Thr Thr Ala Ala Gln Ile Ala Lys Val Met Glu Glu Val Ser Ala
885 890 895

Ile His Thr Ser Gln Glu Asp Arg Ser Ser Gly Ser Thr Thr Glu Leu
900 905 910

His Cys Val Thr Asp Glu Arg Asn Ala Leu Arg Arg Ser Ser Ala Ala
915 920 925

His Thr His Ser Asn Thr Tyr Asn Phe Thr Lys Ser Glu Asn Ser Asn
930 935 940

Arg Thr Cys Ser Met Pro Tyr Ala Lys Leu Glu Tyr Lys Arg Ser Ser
945 950 955 960

Asn Asp Ser Leu Asn Ser Val Ser Ser Asp Gly Tyr Gly Lys Arg
965 970 975

Gly Gln Met Lys Pro Ser Ile Glu Ser Tyr Ser Glu Asp Asp Glu Ser
980 985 990

Lys Phe Cys Ser Tyr Gly Gln Tyr Pro Ala Asp Leu Ala His Lys Ile
995 1000 1005

His Ser Ala Asn His Met Asp Asp Asn Asp Gly Glu Leu Asp Thr
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Pro Ile Asn Tyr Ser Leu Lys Tyr Ser Asp Glu Gln Leu Asn Ser
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Gly Arg Gln Ser Pro Ser Gln Asn Glu Arg Trp Ala Arg Pro Lys
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His Ile Ile Glu Asp Glu Ile Lys Gln Ser Glu Gln Arg Gln Ser
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Arg Asn Gln Ser Thr Thr Tyr Pro Val Tyr Thr Glu Ser Thr Asp
1070 1075 1080

Asp Lys His Leu Lys Phe Gln Pro His Phe Gly Gln Gln Glu Cys
1085 1090 1095

Val Ser Pro Tyr Arg Ser Arg Gly Ala Asn Gly Ser Glu Thr Asn
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Arg Val Gly Ser Asn His Gly Ile Asn Gln Asn Val Ser Gln Ser
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Leu Cys Gln Glu Asp Asp Tyr Glu Asp Asp Lys Pro Thr Asn Tyr
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Ser Glu Arg Tyr Ser Glu Glu Glu Gln His Glu Glu Glu Glu Arg
1145 1150 1155

Pro Thr Asn Tyr Ser Ile Lys Tyr Asn Glu Glu Lys Arg His Val
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Asp Gln Pro Ile Asp Tyr Ser Leu Lys Tyr Ala Thr Asp Ile Pro
1175 1180 1185

Ser Ser Gln Lys Gln Ser Phe Ser Phe Ser Lys Ser Ser Ser Gly
1190 1195 1200

Gln Ser Ser Lys Thr Glu His Met Ser Ser Ser Ser Glu Asn Thr
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Ser Thr Pro Ser Ser Asn Ala Lys Arg Gln Asn Gln Leu His Pro
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Ser Ser Ala Gln Ser Arg Ser Gly Gln Pro Gln Lys Ala Ala Thr
1235 1240 1245

Cys Lys Val Ser Ser Ile Asn Gln Glu Thr Ile Gln Thr Tyr Cys
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Val Glu Asp Thr Pro Ile Cys Phe Ser Arg Cys Ser Ser Leu Ser
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Ser Leu Ser Ser Ala Glu Asp Glu Ile Gly Cys Asn Gln Thr Thr
1280 1285 1290

Gln Glu Ala Asp Ser Ala Asn Thr Leu Gln Ile Ala Glu Ile Lys
1295 1300 1305

Glu Lys Ile Gly Thr Arg Ser Ala Glu Asp Pro Val Ser Glu Val
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Pro Ala Val Ser Gln His Pro Arg Thr Lys Ser Ser Arg Leu Gln
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Gly Ser Ser Leu Ser Ser Glu Ser Ala Arg His Lys Ala Val Glu
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Phe Ser Ser Gly Ala Lys Ser Pro Ser Lys Ser Gly Ala Gln Thr
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Pro Lys Ser Pro Pro Glu His Tyr Val Gln Glu Thr Pro Leu Met
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Phe Ser Arg Cys Thr Ser Val Ser Ser Leu Asp Ser Phe Glu Ser
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Val Ser Gly Ile Ile Ser Pro Ser Asp Leu Pro Asp Ser Pro Gly
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Gln Thr Met Pro Pro Ser Arg Ser Lys Thr Pro Pro Pro Pro Pro
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Gln Thr Ala Gln Thr Lys Arg Glu Val Pro Lys Asn Lys Ala Pro

1445

1450

1455

Thr Ala Glu Lys Arg Glu Ser Gly Pro Lys Gln Ala Ala Val Asn
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Leu His Phe Ala Thr Glu Ser Thr Pro Asp Gly Phe Ser Cys Ser
1490 1495 1500

Ser Ser Leu Ser Ala Leu Ser Leu Asp Glu Pro Phe Ile Gln Lys
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Asp Val Glu Leu Arg Ile Met Pro Pro Val Gln Glu Asn Asp Asn
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Gly Asn Glu Thr Glu Ser Glu Gln Pro Lys Glu Ser Asn Glu Asn
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Gln Glu Lys Glu Ala Glu Lys Thr Ile Asp Ser Glu Lys Asp Leu
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Pro Ser Gln Leu Pro Val Tyr Lys Leu Leu Pro Ser Gln Asn Arg
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Pro Arg Val Tyr Cys Val Glu Gly Thr Pro Ile Asn Phe Ser Thr
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Phe Glu Lys Arg Asp Thr Ile Pro Thr Glu Gly Arg Ser Thr Asp
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Lys Lys Ile Met Asp Gln Val Gln Gln Ala Ser Ala Ser Ser Ser
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Ser Pro Val Lys Pro Ile Pro Gln Asn Thr Glu Tyr Arg Thr Arg
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Val Arg Lys Asn Ala Asp Ser Lys Asn Asn Leu Asn Ala Glu Arg
1790 1795 1800

Val Phe Ser Asp Asn Lys Asp Ser Lys Lys Gln Asn Leu Lys Asn
1805 1810 1815

Asn Ser Lys Asp Phe Asn Asp Lys Leu Pro Asn Asn Glu Asp Arg
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Val Arg Gly Ser Phe Ala Phe Asp Ser Pro His His Tyr Thr Pro
1835 1840 1845

Ile Glu Gly Thr Pro Tyr Cys Phe Ser Arg Asn Asp Ser Leu Ser
1850 1855 1860

Ser Leu Asp Phe Asp Asp Asp Asp Val Asp Leu Ser Arg Glu Lys
1865 1870 1875

Ala Glu Leu Arg Lys Ala Lys Glu Asn Lys Glu Ser Glu Ala Lys
1880 1885 1890

Val Thr Ser His Thr Glu Leu Thr Ser Asn Gln Gln Ser Ala Asn
1895 1900 1905

Lys Thr Gln Ala Ile Ala Lys Gln Pro Ile Asn Arg Gly Gln Pro
1910 1915 1920

Lys Pro Ile Leu Gln Lys Gln Ser Thr Phe Pro Gln Ser Ser Lys
1925 1930 1935

Asp Ile Pro Asp Arg Gly Ala Ala Thr Asp Glu Lys Leu Gln Asn
1940 1945 1950

Phe Ala Ile Glu Asn Thr Pro Val Cys Phe Ser His Asn Ser Ser
1955 1960 1965

Leu Ser Ser Leu Ser Asp Ile Asp Gln Glu Asn Asn Asn Lys Glu
1970 1975 1980

Asn Glu Pro Ile Lys Glu Thr Glu Pro Pro Asp Ser Gln Gly Glu
1985 1990 1995

Pro Ser Lys Pro Gln Ala Ser Gly Tyr Ala Pro Lys Ser Phe His
2000 2005 2010

Val Glu Asp Thr Pro Val Cys Phe Ser Arg Asn Ser Ser Leu Ser
2015 2020 2025

Ser Leu Ser Ile Asp Ser Glu Asp Asp Leu Leu Gln Glu Cys Ile
2030 2035 2040

Ser Ser Ala Met Pro Lys Lys Lys Lys Pro Ser Arg Leu Lys Gly
2045 2050 2055

Asp Asn Glu Lys His Ser Pro Arg Asn Met Gly Gly Ile Leu Gly
2060 2065 2070

Glu Asp Leu Thr Leu Asp Leu Lys Asp Ile Gln Arg Pro Asp Ser
2075 2080 2085

Glu His Gly Leu Ser Pro Asp Ser Glu Asn Phe Asp Trp Lys Ala
2090 2095 2100

Ile Gln Glu Gly Ala Asn Ser Ile Val Ser Ser Leu His Gln Ala
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Ala Ala Ala Ala Cys Leu Ser Arg Gln Ala Ser Ser Asp Ser Asp
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Ser Ile Leu Ser Leu Lys Ser Gly Ile Ser Leu Gly Ser Pro Phe
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His Leu Thr Pro Asp Gln Glu Glu Lys Pro Phe Thr Ser Asn Lys
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Val Tyr Lys Ser Leu Ile Thr Gly Lys Val Arg Ser Asn Ser Glu
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Thr Ser Pro Arg Gly Ala Lys Pro Ser Val Lys Ser Glu Leu Ser
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Pro Val Ala Arg Gln Thr Ser Gln Ile Gly Gly Ser Ser Lys Ala
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Pro Ser Arg Ser Gly Ser Arg Asp Ser Thr Pro Ser Arg Pro Ala
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Ile Ser Pro Gly Arg Asn Gly Ile Ser Pro Pro Asn Lys Leu Ser
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Gln Leu Pro Arg Thr Ser Ser Pro Ser Thr Ala Ser Thr Lys Ser
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Ser Gly Ser Gly Lys Met Ser Tyr Thr Ser Pro Gly Arg Gln Met

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2365

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Ser Gln Gln Asn Leu Thr Lys Gln Thr Gly Leu Ser Lys Asn Ala
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Ser Pro Thr Leu Arg Arg Lys Leu Glu Glu Ser Ala Ser Phe Glu
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Ala Gln Thr Pro Val Leu Ser Pro Ser Leu Pro Asp Met Ser Leu
2480 2485 2490

Ser Thr His Ser Ser Val Gln Ala Gly Gly Trp Arg Lys Leu Pro
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Lys Arg His Asp Ile Ala Arg Ser His Ser Glu Ser Pro Ser Arg
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Leu Pro Ile Asn Arg Ser Gly Thr Trp Lys Arg Glu His Ser Lys
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His Ser Ser Ser Leu Pro Arg Val Ser Thr Trp Arg Arg Thr Gly
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Ala Lys Ser Glu Asp Glu Lys His Val Asn Ser Ile Ser Gly Thr
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Lys Gln Ser Lys Glu Asn Gln Val Ser Ala Lys Gly Thr Trp Arg
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Thr Val Ser Ser Gly Ala Thr Asn Gly Ala Glu Ser Lys Thr Leu
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Ser Pro Thr Gly Asn Thr Pro Pro Val Ile Asp Ser Val Ser Glu
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Ser Glu Thr Asn Glu Ser Ser Ile Val Glu Arg Thr Pro Phe Ser
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